## 1999

## FAA/DER Recurrent Seminar General Session

Structural, Powerplant, and Acoustical DERs (Charts A, B, and I)



Federal Aviation Administration Los Angeles Aircraft Certification Office

> May 18, 1999 Golden Sails Hotel Long Beach, CA

#### 1999 LAACO DER RECURRENT SEMINAR GENERAL SESSION, MAY 18, CRYSTAL BALLROOM GOLDEN SAILS HOTEL, LONG BEACH, CA.

TIME	SUBJECT	PRESENTER		
8:00-8:15AM	INTRODUCTION	G. THOMPSON		
8:15-8:45AM	NEW REGULATIONS	R. STACHO		
8:45-9:15AM	ACO/FSDO FIELD APPROVAL UPDATE	J. KNOEBBER/ C. VUONG		
9:15-9:30AM	COFFEE BREAK			
9:30-9:50AM	AEG PERSPECTIVE FOR FIELD APPROVALS	W. RAU		
9:50-10:10AM	DER MANAGEMENT HANDBOOK, ORDER 8100.8 GUIDANCE HANDBOOK, ORDER 8110.37(c)	S. FRICK		
10:10-10:30AM	CERTIFICATION PROCESS IMPROVEMENT	M. MORELAND		
10:30-11:15AM	CURRENT INTERNATIONAL ISSUES	M. CHESTON		
11:15-11:30AM	RISK ASSESSMENT FOR TIA's	D. SLONE		
11:30-12:45PM	LUNCH			
12:45-1:15PM	DER CANDIDATES & THEIR MENTORS	S. KOLB/DER		
1:15-1:30PM	FAA & Y2K	T. PHAN		
1:30-1:45PM	FOIA & THE DER	A.L. MALABANAN		
1:45-2:00PM	COFFEE BREAK			
2:00-2:45PM	SPECIAL PROCESS SPECIFICATIONS	P. DYJOR		
2:45-3:15PM	INTERNET/FED WORLD UPDATE	K.KENDALL		
3:15-3:30PM	NRS UPDATE	м. соок		

## CHANGES in REGULATIONS, ORDERS, ADVISORY CIRCULARS, and OTHER GUIDANCE MATERIAL

Robert M. Stacho LAACO, Systems Branch

#### Overview

- Regulatory Process/Information
- Final Rules/NPRMs
- Orders
- Notices
- Advisory Circulars

#### Regulatory Process

- Aviation Rulemaking Advisory Committee (ARAC)
  - ARAC Charter, interested parties to develop the new regulations or changes to existing regulations
  - Current activities on ARAC bulletin board
    - · Web site at http://armbbs.faa.gov
    - Dial up instructions http://www.faa.gov/avr/arm/arac
  - Bulletin board provides
    - · Listing of meetings
    - · Committee information
    - · Working group information
    - · Message board

### **Regulatory Information**

- FAA Regulatory WebSite
  - $\quad http://www.faa.gov/avr/arm/nprm/nprm.htm$
  - Web site is current, updated as regulatory actions occur
  - Provides final rule and NPRM
  - Contain regulatory information from 1996 to current
- FAA Regulations
  - Aircraft Certification Home Page http://www.faa.gov/avr/air/airhome.htm
  - Rotorcraft Directorate Home Page
    - · Federal Aviation Regulations

#### Part 25 Final Rules

- Amdt. No. 25-98, Revision of Gate Requirements for High-Lift Device Controls, effective 3/10/99
  - Revise the requirements concerning gated positions on the control used by the pilot to select the position of an airplane's high-lift devices.
  - Harmonizes these standards with those being adopted by the JAA.
- Amdt. No. 25-97 Braked Roll Conditions, effective 6/26/98
  - Adds a new design standard that requires that the airplane be designed to withstand main landing gear maximum braking forces during ground operations.
  - Eliminates differences between the FARs and JARs

#### Part 25 Final Rule

- Amdt. No. 25-96, Fatigue Evaluation of Structure effective 4/30/98
  - Amends the fatigue requirements for damage-tolerant structure
    - to require a demonstration using sufficient full-scale fatigue test evidence that widespread
      multiple-site damage will not occur within the design service goal of the airplane; and
    - inspection thresholds for certain types of structure based on crack growth from likely initial defects
- Amdt. No. 25-94, Technical Amendments and Other Miscellaneous Corrections - effective March 25, 1998
  - Amends 25.107, 25.111, 25.119, 25.233, 25.349, 25.481, 25.807, 25.832, 25.903, 25.1185, and Appendix F, Part II are effected.

#### Part 25 Final Rule-

- Amdt. 25-93, Revised Standards for Cargo or Baggage Compartments in Transport Category Airplanes, effective February 17, 1998
  - Upgrade the fire safety standards for cargo or baggage compartments in certain transport category airplanes by eliminating Class D
  - Compartments that can no longer be designated as Class D must meet the standards for Class C or Class E compartments
  - Class D compartments in certain transport category airplanes manufactured under existing type certificates and used in passenger commercial service must meet the fire or smoke detection and fire suppression standards for Class C compartments by early 2001
  - Class D compartments in certain transport category airplanes manufactured under existing type certificates and used **only for the carriage of cargo** must also meet such standards or the corresponding standards for Class E compartments by that date for such service.

#### Part 25 Final Rule-

- Amdt. No. 25-92, Improved Standards for Determining Rejected Takeoff and Landing Performance, effective 3/20/98
  - Revise the method for taking into account the time needed for the pilot to accomplish the procedures for a rejected takeoff
  - takeoff performance be determined for wet runways; and require that rejected takeoff and landing stopping distances be based on worn brakes
  - Harmonize with revised standards of the JAR-25. Not being applied retroactively

#### Part 23, 25 and 33 Final Rule

- Amdt.No.'s 23-53, 25-95, and 33-19, Rain and Hail Ingestion Standards, effective April 30, 1998
  - Revise certification standards for rain and hail ingestion for aircraft turbine engines.
  - address engine power-loss and instability phenomena attributed to operation in extreme rain or hail that are not adequately addressed by current requirements.
  - harmonize these standards with rain and hail ingestion standards being amended by the Joint Aviation Authorities (JAR).

#### Part 27 and 29 Final Rule

- Amdt. No.'s 27-35 and 29-42, Harmonization of Miscellaneous Rotorcraft Regulations, effective September 8, 1998
  - The amendment adds a 1.33 fitting factor structural strength requirement to the attachment of litters and berths, clarifies and added burn test requirements for electrical wiring, and added a requirement for a cockpit indication of autopilot operating mode for certain autopilot configurations.
  - Revises 27.625, .785, .975, .1329, and .1365
  - Revises 29.625, .785, .923, .975, .1329, .1351, and .1359

#### **Part 34 Final Rule**

- Amdt. 34-3, Emission Standards for Turbine Engine Powered Airplanes, effective February 3, 1999
  - Revises the emission standards for turbine engine powered airplanes to incorporate the current standards of the ICAO for gaseous emissions of oxides of nitrogen and carbon monoxide.

#### NPRM - Aging Airplane Safety Parts 119, 121, 135, 183

- Aging Airplane Program for multiengine airplanes operated under Parts 119 and 135
  - Aging Aircraft Safety Act of 1991
  - proposes damage-tolerance analysis and inspection techniques be applied to older airplane structures that were certificated before such techniques were available
  - Allows DARs to conduct certain record reviews and inspections
  - Withdraws NPRM 93-5
  - Comment period closes August 2, 1999
  - Available at FAA web page; http://www.faa.gov/avr/arm/nprm/nprm.htm
  - Frederick Sobeck, (202) 267-7355

### NPRM-Part 36 Noise Certification Standards for Propeller-Driven Small Airplanes

- The FAA is proposing changes to the noise certification standards for propeller-driven small airplanes.
- Harmonize the FAR and JAR requirements for propeller-driven small airplanes.
- · Comment Period Closed
- Mehmet Marsan, AEE, (202) 267-7703.

### NPRM - Part 27 and 29 Harmonization of Critical Parts Rotorcraft Regulations

- Amend the airworthiness standards in Parts 27 and 29
  - Define critical parts
  - Require a critical parts plan to establish procedures that would require the control of the design, substantiation, manufacture, maintenance, and modification of critical parts.
  - Comment Period Closed
- Carroll Wright, Rotorcraft Directorate, (817) 222-5120.

#### NPRM - Part 27 Normal Category Rotorcraft Maximum Weight and Passenger Seat Limitation

- This proposal would increase the maximum weight limit from 6,000 to 7,000 pounds and add a passenger seat limitation of nine.
- The increase in maximum weight is proposed to compensate for the increased weight resulting from additional regulatory requirements, particularly recent requirements intended to improve occupant survivability in the event of a crash.
- These changes are intended to update current airworthiness standards to provide the safety standards for normal category rotorcraft of 7,000 pounds or less.
- · Comment Period Closed
- Lance Gant, Rotorcraft Standards Staff, (817) 222-5114

## NPRM - Parts 27 and 29 Rotorcraft Load Combination Safety Requirements

- Amend standards for rotorcraft load combination (RLC) certification.
  This proposal would revise the safety requirements for RLC's to
  address advances in technology and to provide an increased level of
  safety in the carriage of humans. (FAR 27.25, 27.865, 29.25, 29.865)
- These proposed amendments would provide an improvement in the safety standards for RLC certification and lead to a harmonized international standard.
- Comment Period Closed
- Mr. Mike Mathias, Rotorcraft Directorate, (817) 222-5123.

#### **Orders Issued/Revised**

- 8100.8-Designee Management Handbook
- 8110.37C DER Handbook

#### **Notices Issued**

- Notice 8110.71-Guidance for the Certification of Aircraft Operating in High Intensity Radiated Field Environments
  - Provides requirements for HIRF certification until harmonized FAR/JAR rule is issued.
  - Requires ACOs to issue special conditions on a case-by-case basis
  - Requirements based on those adopted by the Electromagnetic Effects Harmonization Working Group ARAC
  - http://www.faa.gov/avr/air/air100/n8110\_71.pdf
- Notice 8110.72 Structural Designated Engineering Representatives Approvals of Alternative Methods of Compliance to Airworthiness Directives and AD Mandated Repairs
  - Allows certain manufacturer's structural DERs to approve alternate methods of compliance

#### **Notices Issued**

- Notice 8110.76 DER to Designated Inspection Representative Notification Process
  - Allows DERs to process 8120-10, Request for Conformity, without ACO review
  - Must have coordinated up-front conformity plan that prescribes which RFCs may be processed without FAA involvement
  - Plan defines tracking and paperwork requirements and methods for resolving unsatisfactory findings
- Notice 8110.77 Guidelines for the Approval of Field-Loadable Software
  - Applicable to TC, ATC, STC, TSO
  - Additional policy being developed to address PMA
  - Supplements DO-178B
  - www.faa.gov/avr/air/air100/sware/sware.htm

#### **Notices Issued**

- Notice 8110.78 Guidelines for the Approval of Software Changes in Legacy Systems Using RTCA DO-178B
  - Clarifies requirements in 178B
  - Provides guidance on the application of DO-178B to software changes made to systems developed under 178 or 178A
  - Available at www.faa.gov/avr/air/air100/sware/sware.htm
- Notice 8110.79 Guidelines for the Approval of Field-Loadable Software by Finding Identicality through the Parts Manufacturer Approval Process
- Provides guidelines for approving Field-loadable software through PMA
  - Limited to identicality with and without a licensing agreement
  - Does not cover test and computations

#### **Notices Issued**

- Notice 8110.80 The FAA and Industry Guide to Product Certification
  - FAA/Industry Certification Process Improvement (CPI) process
  - Provides a structured approach to the project management of a certification program
  - Emphasis on upfront communication and planning
  - Strongly encouraged for TC programs and significant STC projects
- Notice 8110.81 Guidelines for the Software Review Process
  - Objectives of the software review process
  - Interaction between the software review process and software life cycle
  - Additional considerations for the software review process
  - Preparing, conducting, and documenting the software review

### **Advisory Circulars Issued**

- 21-40 Application Guide for Obtaining a Supplemental Type Certificate
  - Provides information and guidance regarding procedures for obtaining a supplemental type certificate for typical modification projects.
  - http://www.faa.gov/avr/air/acs/achome.htm
- 23.1419-2A, Certification of Part 23 Airplanes for Flight in Icing Conditions.
  - Compliance with the ice protection requirements Part 23.
- 25.629-1A, Aeroelastic Stability Substantiation of Transport Category Airplanes
  - Compliance with the provisions of part 25 of the dealing with the design requirements for transport category airplanes to preclude the aeroelastic instabilities of flutter, divergence and control reversal.

#### **Proposed Advisory Circulars**

- 25-XX, Certification of Transport Airplane Mechanical Systems
  - Provides methods acceptable for showing compliance with the provisions of subparts D and F of 14 CFR part 25 regarding the type certification requirements for transport airplane mechanical systems.
- 25-XX, Certification of Transport Airplane Electrical Equipment Installations
  - Guidance on compliance with the certification requirements for transport airplane electrical systems and equipment installations.
- 25-XX, Certification of Transport Airplane Structure
  - Showing compliance with the provisions of subparts C and D of 14 CFR part 25 regarding the type certification requirements for transport airplane structure.

#### **Proposed Advisory Circulars**

- 25.1419-1X, Certification of Transport Category Airplanes for Flight in Icing Conditions
  - Guidance for certification of airframe ice protection systems on transport category airplanes.
- 25.803-1A, Emergency Evacuation Demonstrations
  - Provides guidance on compliance with FAR concerning (1) conduct of full-scale emergency evacuation demonstrations, and (2) use of analysis and tests in lieu of conducting an actual demonstration.
- 23-XX-26, Powerplant Guide for Certification of Part 23 Airplanes
  - Provides guidance on compliance with 14 CFR part 23, subpart E, -powerplant installation in normal, utility, acrobatic, and commuter category airplanes.
     Consolidates existing policy documents and certain AC's that cover specific paragraphs of the regulations, into a single document.

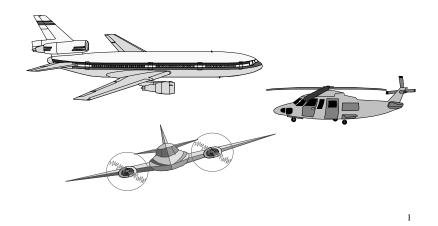
#### **Proposed Advisory Circulars/Revisions**

- 34-1, Fuel Venting and Exhaust Emissions Requirements for Turbine Engine Powered Airplanes
  - Provide section-by-section guidance on 14 CFR Part 34.
- 23.1309-1(C) Proposed Revisions Equipment, Systems, and Installations in Part 23 Airplanes
  - Provides guidance and information for an acceptable means for showing compliance with the requirements of Sec. 23.1309(a) and (b) (Amendment 23-49) for equipment, systems, and installations in Title 14 CFR Part 23 airplanes.
- 23.1311-1A Proposed Revisions Installation of Electronic Displays in Part 23 Airplanes
  - Acceptable means of showing compliance applicable to the installation of electronic displays in Part 23 airplanes

### **Proposed Advisory Circular Revisions**

- AC 91-MA
  - Provides guidance for manufacturers and operators in developing continued structural integrity programs of small transport and commuter airplanes
- AC120-xx
  - Provides guidance to aging aircraft records review to satisfy the requirements of the Aging Airplane Safety final rule
- AC 27-1A & AC 29-2B Proposed Changes
  - Provides guidance as to an acceptable means of accomplishing the requirements of a proposed rule on the subject of requirements for a <u>critical parts plan</u> for normal and transport category rotorcraft.
  - Guidance to comply with the proposed rules on the subject of normal and transport category rotorcraft load combination safety requirements and on the subject of normal category rotorcraft maximum weight and passenger seat limitation.

## UPDATE ON FIELD APPROVALS



## What is a Field Approval?

- An FAA approval in the field for non-complex mods
  - Issue by the FSDO for a major alteration to a TC'd product
  - Executed on a Form 337
  - Block 3 signed by the inspector FAA Approval of the data
  - For one aircraft (model type and serial number)
- If the data has been approved, then FAA Approval is not needed - No signature on Block 3

NOTE: Form 337 is also used to document a **major repair** 

- No alteration to the product No signature on Block 3
- Perform to an FAA Approved data

## DEMAND ON FIELD APPROVALS

- Why?
  - To meet customer needs in a timely fashion
  - Reduces ACO admin. resources for a one-time STC
    - As a result, ACO redirects resources to other programs
  - FSDO has the authority but lacks of ACO/DER technical support
    - Implementation of LAACO/AWP-200 Working Agreement
    - Released on May 01, 1998
  - Partnership between ACO/FSDO/DER/Aviation Community

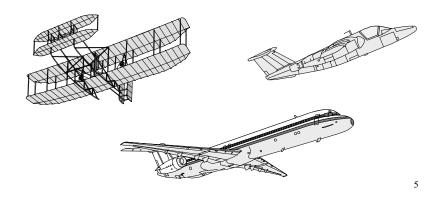
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# FIELD APPROVAL Vs. One-time STC

- Both are a major alteration (change) to type design
  - Performs to FAA Approved data
  - Meets all of affected regulations
  - For a specific aircraft model and serial number
  - Data may not be sufficient for duplication
  - Has the same weight and approval basis

## LAACO & AWP-200 WORKING AGREEMENT

Guidance for Field Approvals of a Major Repair/Alteration



FIELD APPROVAL WORKING AGREEMENT

### • Objectives:

- To provide guidance to ACO, FSDO, DERs, and aircraft modifiers/owners, and repair stations
- To identify key players roles & responsibilities
- To establish an upfront communications
- To achieve standardization on certification requirements
- To promote a working environment of trust, cooperation, and teamwork
- To meet customer needs in a timely & safe manner

# FIELD APPROVAL WORKING AGREEMENT

- Key Players
  - Applicant
  - FSDO Aviation Safety Inspector (ASI)
  - Aircraft Evaluation Group (AEG)
  - ACO Focal Point (FP)
  - ACO Project Engineer (PE)
  - Designated Engineering Representatives (DERs)

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# UPFRONT PLANNING/COMMUNICATION

- Communicate with the FSDO prior to the modification
- Reach an agreement on the certification approach
  - Define the FAA expectations and data requirements
- Contact ACO focal point(s), if needed, for assistance
- C Cube (Continuous Cooperation and Communication)



IS THE



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#### **DER's INVOLVEMENT**

- DO
  - Act as a LIASON between the applicant and FSDO/ACO
  - Develop and approve data within delegated functions (Major Repair/Alteration)
  - Make finding to applicable FARs
    - Perform a compliance and installation review
    - · Not a desk-top review
  - Mentor the inspectors regarding FAR compliance
    - If disagree on the approach, don't approve the data
    - Contact ACO Focal Points for further assessment

#### **DER's INVOLVEMENT**

- DO
  - Pertinent information on 8110-3
    - List specific regulations/areas that have been approved
    - List other areas/systems, <u>if known</u>, that need review/approval
  - Data submittals
    - Original 8110-3 to appointed ACO
    - Copy of 8110-3 and data to FSDO and modifiers (aircraft owners, repair stations)

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#### **DER's INVOLVEMENT**

#### • DON'T

- Approve the type of inspection and inspection intervals
- Grant field approval (sign Block 3 of Form 337)
- Conduct conformity inspection (sign Block 6)
- Return the aircraft back to service (sign Block 7)
- List inappropriate FAR on 8110-3. For example:
  - 21.93 Acoustical Change
  - 21.95 Minor Change, 21.97 (Major Change)
  - 21.50 IFCA
  - 43.13, Appendix A
  - AC 43.13-1B or -2A

#### **DER's INVOLVEMENT**

#### • DON'T

- Approve repair station standard shop procedures and processes such as:
  - · Personnel qualifications and training
  - Equipment/component handling
  - Receiving/inspecting/cleaning/shipping
  - NDT inspection procedures
  - Repair station Operating Spec. or IPM (Inspection Procedure Manual)
- Approve generic process specs

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#### **DEFINITION of DATA**

Information that defines the configuration, system(s), and/or its operation

- Process specifications
- Stress analysis, Electrical load analysis, etc.
- Drawings, sketches, or photos
- Engineering Orders (EOs)
- Service Bulletins (S/Bs)
- Design Limitations Operation or Maintenance

#### APPROVED DATA

- Original Equipment Manufacturer (OEM) data
  - Structural Repair Manual (SRM)
  - Service Bulletins, Mod drawings
  - Repair processes & procedures
- DER approved data (Form 8110-3)
- Form 337s
- TCDS
- STC
- Airworthiness Directive (AD)
  - AMOC (Alternative Method of Compliance to the AD)

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#### PREVIOUSLY APPROVED DATA

- Can be used as a basis to obtain field approvals
  - If the data is applicable and eligible to the mod
- Consists of:
  - One-time STC approved data,
  - Previously approved data via 337s, or
  - SRM, mod drawings, etc.
- The acceptance is at the inspector's discretion
  - May vary from one to another based on their experience and comfort level

## USE of PREVIOUS STC APPROVED DATA

- Written evidence must be provided if
  - STC holder allows any person to use the certificate to make a modification
  - Any person wishes to modify the product that is based on the STC
  - Example: \_\_\_\_\_ may hereby use STC SAxxxxxx to modify (aircraft, aircraft engine, propeller, or appliance)
    - Reference: FAA Notice 8110.69, dated 6/30/97 and Public Law 104-264, Section 403
- Flight Standards will impose the above requirement prior to granting field approvals if based on STC approved data

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#### ACCEPTABLE DATA

- Acceptable methods, techniques, and practices
  - AC 43.13-1B Aircraft Repair & Inspection
  - AC 43.13-2A Aircraft Alteration
- Previously approved 337's data
- ASTM, Mil-Spec, SAE, etc.
- Original Equipment Manufacturer (OEM) data
  - Service/Overhaul Manual
  - Illustrated Parts Catalog (IPC) & Maintenance Manual (M/M)
     NOTE: IPC & M/M are not FAA Approved documents
- U.S. Armed Services Tech Orders/Directives (TO/TD)

**NOTE:** Acceptable data can be used <u>as an approval basis</u> for obtaining FAA Approval

#### SHOP PRACTICES/PROCESSES

- Specific to a repair station and may vary from one to another
  - Equipment/component handling
  - Receiving/inspecting/cleaning/shipping
  - NDT procedures
- Do not contain engineering data/info that require ACO/DER approval
- May have been accepted by the FAA (AC 43.13-1B/-2A) or by industry

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#### PROCESS SPECIFICATIONS

- From the ACO perspective, a process spec must contain the following information:
  - A procedure/process on how to perform a repair
  - A spec/standard that a repair is being performed too
- Some process specs require FAA approval
  - Not industry accepted practices/specs
  - Specific to a repair/component
  - Not contained in and/or deviation to the OEM procedures
- ACO received policy in not approving generic process specs

#### COMPLIANCE INSPECTION

- ACO/DER/FSDO performs the compliance inspection to ensure the installation meet the regulations. For example:
  - Propeller clearance, FAR 23.925
  - Misc. Markings and Placards, FAR 23.1557
  - Warning, Caution, Advisory Lights, FAR 23.1322.
- Certain compliance inspections are reserved for the FAA
  - Emergency evacuation and exits, FARs 23.803 & 23.807
  - Width of aisle, FAR 23.815
  - Fire zone and flammable fluid protection, FAR 23.863
  - Delegated on a case-by-case basis to DERs

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#### CONFORMITY INSPECTION

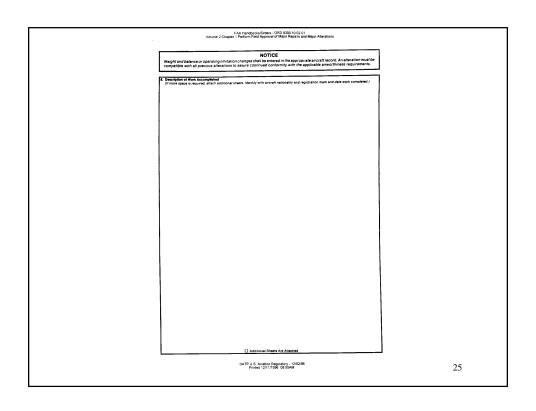
- A&P mechanic/IA/FSDO conducts the review to ensure
  - The part/equipment is installed IAW the drawing
  - The part/equipment is repaired IAW the repair data
  - The instrument/equipment is within the calibration date/data
  - The part/equipment has the correct part and serial numbers
  - The overall airworthiness of the aircraft

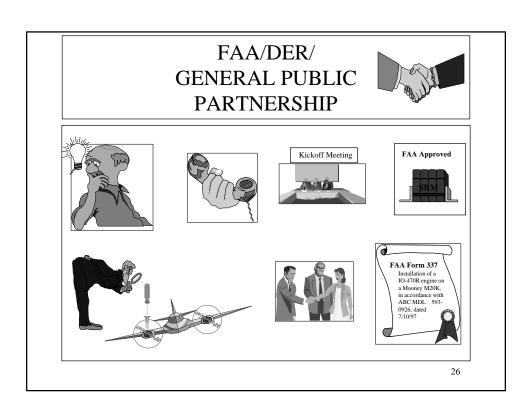
NOTE: IAW (In Accordance With)

# FIELD APPROVAL PROJECT COMPLETION

- DER data package is complete, thorough, and applicable to the modification
  - Form 337 is filled out except for
    - Block 3 (FSDO Approval), Block 6 (A&P Mechanic for conformity inspection), and Block 7 (IA return to service)
  - Block 8 of Form 337 must reference:
    - The 8110-3 or other approved means (SB, AD, etc.)
    - · AFM/RFM Supplement, if required
    - IFCA if different from OEM procedures
    - Installation instructions, wiring diagram, CMM, IPC, SRM, etc.
    - Any other documents that are used to accomplish the modification
      - AC 43.13-1B, Chapter xx, Page xx

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## FORM 337 GUIDANCE

Bill Rau LGB-AEG

### FSAW 98-03

- Flight Standards Information Bulletin for Airworthiness FSAW 98-03 for Major Alterations Approved under the Field Approval Process (Form 337)
- Requires Instructions for Continued Airworthiness (ICA) prepared in accordance with Part 21-50,documented on the 337 for location
- Requires ICA be incorporated into aircraft inspection and maintenance program (available to mechanic/repair station)
- Requires reference to ICA on 337 for ships record

## Los Angeles DER Recurrent Seminar-May 18, 1999 AEG Perspective for Field Approvals

### Form 337 Guidance

- FSAW 98-XX (Field Input) (ID of AEG's)
- Flight standards Information Bulletin for Airworthiness FSAW 98-XX Checklist for ICA for Major Alterations Approved under the Field Approval Process (Form 337)
- Checklist requires ICA prepared, documented on 337 in accordance with FSAW 98-03 and Part 21.50 and be incorporated into the aircraft inspection & maintenance program
- Checklist includes AMM description, removal/replacement, servicing, troubleshooting, wiring diagrams,IPC, periodic maintenance inspections and techniques,overhaul,tools & ALI

#### **Instructions for Continued Airworthiness**

- Instructions for continued Airworthiness must be available at the time of issue or reestablishment of the aircraft Standard Certificate of Airworthiness
- FAR 21.50(b) requires ICA <u>and changes</u> to ICA in accordance with FAR 25.1529 Appendix H

### Los Angeles DER Recurrent Seminar-May 18, 1999 AEG Perspective for Field Approvals

# Instructions for Continued Airworthiness (Continued)

- While Aircraft Maintenance Manuals (AMM) exist for aircraft, Changes to all of the ICA manuals is also necessary to address modifications
- ICA must be available to the aircraft operator for use by repairmen at any repair facility used by the operator (may be many)
- Having ICA info in ships records or operators files does not help repairman

# Instructions for Continued Airworthiness (Continued)

- Aircraft Mods/Changes need to be reflected in the operators AMM & Scheduled Maintenance Program
- AMM supplement needed for system description, operation, location illustration, removal/installation, and testing
- Illustrated parts Catalog (IPC) supplement needed for Line Replaceable Unit (LRU) part numbers

## Los Angeles DER Recurrent Seminar-May 18, 1999 AEG Perspective for Field Approvals

# Instructions for Continued Airworthiness (Continued)

- Wiring Diagram Manual supplement needed for changes
- Scheduled MX program supplement needed for periodic servicing, lubrication, replacement, overhaul, and test/checks
- Periodic scheduled inspections needed to check for integrity, security, wear, chaffing, etc.

# Instructions for Continued Airworthiness (Continued)

- Needed periodic structural inspections, methods, and standards for eddy current, ultrasonic, x-ray, etc
- Corrosion Prevention and Control Program (CPCP) and Supplemental Structural Inspection Document (SID) changes needed
  - Note: Mandated by AD for certain FAR 25 123
     aircraft
- Damage Tolerance requirements of FAR 25.571 must be maintained

# Instructions for Continued Airworthiness Typical Form 337 Shortcomings

- Handbook Bulletin for Airworthiness (HBAW) 98-12B Ops Spec for 135 Carriage of Cargo addresses deficiencies in cargo conversion field approvals, especially ICA
- HBWA 97-12A (amended) addresses deficiencies in cargo loading/handling and ICA
- Technical Standards Order (TSO) and Parts
  Manufacturing Approval (PMA) only addresses
  standards for <u>uninstalled equipment</u>. DER 8110-3 for
  approval of <u>data only</u> and typically does not include ICA
  compliance. Form 337 approves <u>entire installation</u>,
  including ICA

## Shortcomings (Continued)

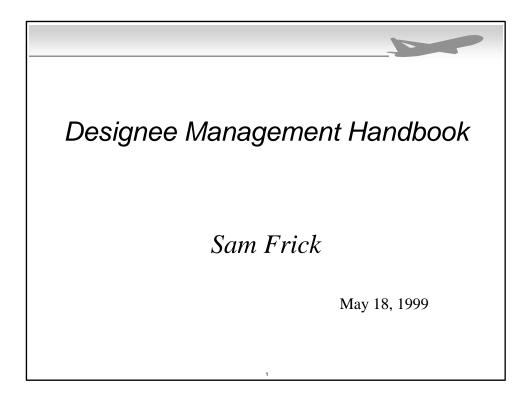
- TSOs & PMAs require Component Maintenance Manuals (CMM) which are shop overhaul manuals. May include installation manuals (generalized info and not aircraft specific)
- CMM data, installation manual data, DER data not applied to AMM, IPC, MX program, etc and supplementary data is not available for and with the aircraft for repair & MX
- Form 337 ICA filed away in ships records and not available to repairman

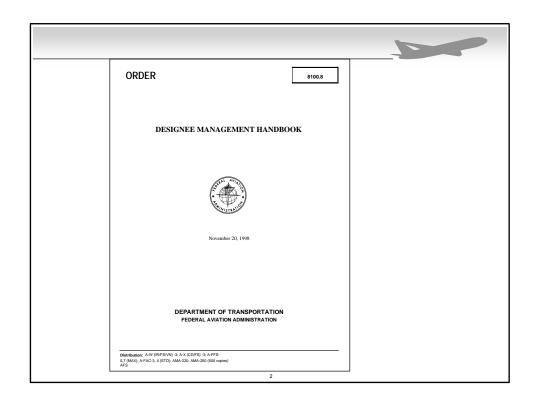
## Master Minimum Equipment List

- Form 337 MMEL Considerations
  - Form 337 modifications can add operating systems to an aircraft
  - Everything installed on aircraft must work or provisions made for inoperative items
  - Part 91.213 allows for inoperative equipment as does Part 121.628 & 135.179

# Master Minimum Equipment List (Continued)

- Operators approved MEL is based on Master MEL (MMEL)
- Apply to appropriate AEG for Adding 337 items to MMEL
- Otherwise, everything installed by 337 must work
- Flight Crew Operating Manual (FCOM) New issue- Form 337 modifications can also affect this manual







... "establish a unified national selection and appointment process for manufacturing and engineering designees."

#### Benefits of the New Process

- → Efficiency
- → Better guidance/documentation
- → One System
- + Standardization



# What Does the DST Selection and Appointment Process Look Like?

Key process improvements...

- > Defined appointment cycle time
- → Panel approach
  - Evaluation Panel decision/sign-off
  - Appeal Panel and defined process for appeals

continued...



# What Does the DST Selection and Appointment Process Look Like?

Key process improvements...

- → Documentation
  - Standardized application package
  - Clearly defined and consolidated appointment criteria
  - Standardized applicant correspondence
  - Process Checklist
  - Knowledge based questionnaire
  - ◆ Designee Working Agreement

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# What Does the DST Selection and Appointment Process Look Like?

New Key Players...

#### → Appointment Process Coordinator (APC)

The FAA individual that initiates the formal selection, orientation, and appointment review process and coordinates all subsequent FAA actions

#### → Advisor

An ASE (Aircraft Safety Engineer) or ASI (Aviation Safety Inspector) or FTP (Flight Test Pilot) assigned to the designee applicant and performs the initial evaluation and continuous oversight after appointment.

continued...



# What Does the DST Selection and Appointment Process Look Like?

New Key Players...

#### → Evaluation Panel (EP)

Two or more technical specialists (ASE, ASI, FTP,...) assigned to evaluate a designee applicant's qualifications against standards in order to determine appointment/candidacy/denial and delegated authority as appropriate

#### Appeal Panel

Two or more office managers and/or senior ASE/ASI/FTP assigned the task of determining if the Appointment Process was conducted properly in the event of an designee applicant's appeal of the FAA's decision

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#### **Process Overview**

Non-standard appointments...

#### > Request for expanded delegations

For DERs, <u>all</u> requests to expand delegations will be reviewed by the FAA Advisor to determine whether an EP needs to be formed.

#### → Dual DER appointments

Any requests for dual DER appointments (company/consultant) will be reviewed by the FAA Advisor to determine whether an EP needs to be formed.

5

#### **Process Overview**

Non-standard appointments...

#### → Transfer appointments

**Note:** The object of a standard appointment process is to develop a level of confidence in the integrity of the system such that acceptance by all offices of an appointment decision is the norm.

#### **OBJECTIVE**

The DST Charter Phase II will incorporate remaining designee management processes into the Designee Management Handbook

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#### **TRAINING**

- 1. FAA Seminars
  - a) Orientation
  - b) Standardization/Initial Seminars
  - c) Recurrent Seminars
- 2. Specialized Training
  - a) Local office/workshops
  - b) Indoctrination
  - c) Other...
- 3. FAA Advisor Training
  - a) Flight Standards
  - b) Aircraft Certification

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- 1. General (ratios, factors affecting oversight, workload, and ability to manage)
- 2. Responsibilities (counseling, feedback, coaching,...)
- 3. Supervisor/Monitoring/Tracking
  - a) DER Oversight
    - 1) Eight Key Interactions
    - 2) Performance Feedback
    - 3) Candidate Oversight
    - 4) Special oversight for repair and alterations
    - 5) Special oversight for Administrative and Management DERs
    - 6) Special oversight for Software DERs
    - 7) Executive level DERs
    - 8) FAA Response (acknowledge receipt of submittals)
  - b) DMIR/DAR/ODAR Oversight

1



#### RENEWAL

- 1. Duration of Appointments
- 2. DER Procedure
  - a) Candidate Procedure
  - b) Interaction Tracking Forms
  - c) DER Performance Evaluation Form
  - d) Evaluation Basis
- 3. DMIR/DAR/ODAR Procedure
  - a) Candidate Procedure
  - b) Activity Reports
  - c) ODAR Staff changes

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## RENEWAL (cont.)

- 4. Recommendation for Non-Renewal
- 5. FAA Renewal Action
- 6. DIN Update (and other file maintenance)
- 7. FOIA consideration

15

#### **TERMINATION**

- 1. Cause for Termination
  - a) Deceased
  - b) Retired
  - c) By Request
  - d) Change of Employment
  - e) Misconduct
  - f) Insufficient Activity
  - g) Lapse in Qualifications

16

OR,

### TERMINATION (cont.)

- 1. Cause for Termination (cont.)
  - h) Certificate Suspension, Cancellation, or Revocation
    - ◆ Lack of Care, Judgment, or Integrity
    - ♦ Lack of FAA need or ability to manage
    - ♦ Any other reason

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#### TERMINATION (cont.)

- 2. Notice of Action
- 3. Written Notification
- 4. Termination Appeal Procedures
- 5. FAA Coordination
- 6. DIN Update (and designee file update)

18

### DESIGNEE BEST PRACTICES/GUIDANCE MATERIAL

- 1. Guidance Material
- 2. Electronic Guidance Material
- 3. Best Practices
- 4. Other Guidance Material and Forms
- 5. Designee Web Site (http://av-info.faa.gov/dst)

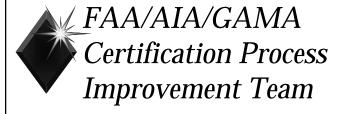
19



### FAA and Industry Guide to Product Certification

#### Maureen Moreland

Airframe Branch Los Angeles Aircraft Certification Office



- U.S. Industry/FAA working together to improve process for Certification, Production and COSP
- ◆ FAA commitment at all Directorates
- ◆ FAA and Industry Guide to Product Certification:
  - ◆ Early closure of certification basis
  - ◆ Agreement on delegation plan, conformity process, COSP plan, and roles and responsibilities
  - ◆ FAA/company partnership agreement
  - ◆ FAA/project specific partnership agreement



## Purpose of the Guide

- How to define & document an effective/efficient product certification process between the FAA and applicant
- ◆ Establish a clear understanding of the needs and expectations of both parties
- ◆ Reduce cycle time to certificate a product
- ◆ Ensure regulatory compliance
- ◆ Require earlier FAA involvement with applicants in project planning

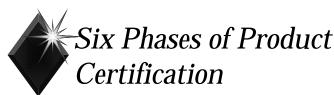


# GOALS - Cooperative partnership between FAA and applicant's Leadership and Team Players

- ◆ Safety
- ◆ Teamwork
- **♦** Communication
- Planning for success
- ◆ Quality products and services
- ◆ Accountability at all levels



- Timely and efficient product type design and production approval
- Clearly defined and understood roles, responsibilities, and accountability of all stakeholders
- ◆ Timely Identification and resolution of:
  - the certification basis;
  - potential safety issues;
  - business practice requirements
- Optimal delegation using safety management concepts with appropriate controls and oversight



- ◆ Partnership for Safety Plan phase
- ◆ Conceptual design & standards phase
- ◆ Refined product definition & risk management phase
- ◆ Certification project planning phase
- ◆ Certification project management phase
- ◆ Post certification activities phase



### Two Major Elements

#### Partnership for Safety Plan

- ◆ Between applicant & FAA
- Written agreement for early familiarization & planning
- Establishes expectations, operating norms & deliverables
- Defines discipline & methodology
- Company/FAA commitment

#### Product Specific Certification Plan

- Developed for the conduct of each certification plan
- In concert with the Partnership for Safety Plan
- Used as a project management tool
- Would contain specific project procedures for delegation, conformity, issue resolution, etc.
- ◆ Program/FAA commitment



## Key Players - Key Principles

- ◆ ALL STAKEHOLDERS PARTICIPATE
- ◆ Desired results Win-Win Partnership
- ◆ Guidelines Partnership for Safety Plan
- ◆ Resources Project Specific Certification Plan
- ◆ Accountability Project Specific Certification Plan
- ◆ Consequences mutual interdependence



- ◆ Finalize FAA & Industry Guide February 1999
- ◆ 75% of ACOs implement a PSP with a targeted Industry partner in FY99
- ◆ Expand to additional Industry partners
- ◆ Continuous feedback and improvement
- ◆ Success is in the journey, not arrival at the destination

# CURRENT ISSUES IN INTERNATIONAL CERTIFICATION

FAA, International Airworthiness Programs Staff

#### INTERNATIONAL ISSUES

- → Transformation of BAAs to BASAs
- → Standardized designee notifications
- → Global expansion v. FAA resources
- Extraterritoriality: International STCsDecision Papers
- + Certificate Transfers Outside the U.S.

Current Issues in International Certification

2

# BILATERAL AVIATION SAFETY AGREEMENTS (BASAs)

- → As of January 1996, the U.S. will no longer conclude Bilateral Airworthiness Agreements (BAAs)
- → New format: BASA

Executive agreement + Implementation Procedures



Many countries seeking new agreements

Current Issues in 3 May 1999
International Certification

#### **BAA to BASA**

- + 12 countries have signed BASA Executive Agreements
- → 2 countries with Implementation
   Procedures for Airworthiness (IPAs);
   3 others under negotiation
- All old BAAs to eventually be renegotiated

Current Issues in 4 May 1990 International Certification

#### TECHNICAL ASSESSMENTS

- → Before recommending any BASA for airworthiness, FAA conducts a technical assessment to assure comparable certification systems
- → Long-term projects/commitment (Russia, Poland, Romania)
- Common deficiencies:
  - > production oversight systems
  - > management culture/authority

Current Issues in International Certification

5

May 1999

#### "NEW" IPAs

- New documents address very specific issues that have been problematic in the past:
  - reciprocal acceptance of delegation systems
  - > parts acceptability, including PMA imports
  - > sharing of continued airworthiness info

Current Issues in International Certification

65

#### **Designee Notifications**

- → IPAs commit to notification when designees are traveling to do work in another country
  - > Letter from ACO to Civil Aviation Authority
    - Past practice for Designated Airworthiness
       Representatives (DAR) and Designated Manufacturing
       Inspection Representatives (DMIRs)
    - Now also in Designated Engineering Representatives (DER) handbook (Order 8110.37C. para. 609)
- FCAAs requesting feedback from designee visits.

Current Issues in International Certification

7

May 1999

# GLOBAL MANUFACTURING "Undue Burden"

- FARs preclude manufacturing activities outside the U.S. unless the FAA finds not a burden to administer
- → More complex and diverse projects creating additional burden to the FAA
- → Other authorities' systems (and BAAs) set up to support domestic products, not expansion of U.S. industry

Current Issues in International Certification

8

# GLOBAL MANUFACTURING Management Review via Decision Papers

→ AIR policy since May 1997 to prepare decision papers for management when projects will involve activities outside the U.S.

(ACO/MIDO→Directorate →HQ)

→ ACOs/MIDOs need to consider the ramifications of approvals (i.e.,STC, production approval, priority parts suppliers) that involve other States of Registry, offshore installations and manufacturing outside the U.S., etc.

Current Issues in International Certification

9

May 1999

#### International STCs

- Bilateral agreements (except Canada) have not covered reciprocal acceptance of STCs.
- Yery little policy. Data gathering and new guidance under development.
- Management reviewing projects through the decision paper process

Current Issues in International Certification 10

#### Problemmatic STC Practices

- → STC modification for aircraft model that does not have a U.S. type certificate
- Acceptance of foreign applications or "storefronts" for foreign manufacturers
- Multiple STC approval without obtaining PMA (foreign parts become SUPs)
- DARs performing airworthiness release functions for foreign-registered aircraft in foreign countries

Current Issues in International Certification

7.1

May 1999

### U.S. Obligations

#### → Per ICAO:

"All modifications and repairs shall be shown to comply with airworthiness requirements acceptable to the State of Registry. Procedures shall be established to ensure that the substantiating data supporting compliance with the airworthiness requirements are retained."

Annex 6, Part I, Para. 8.6

ICAO guidance further states that a major modification or repair to an aircraft should be accomplished in accordance with design data approved by, or on behalf of, or accepted by the airworthiness authority of the State of Registry. . .

#### **Decision Papers**

- → Why:
  - (1) Lack of standardization in the field
  - (2) Increased consideration of safety oversight responsibilities
- → What is needed in a decision paper:
  - > Issue
  - > Supporting Information
  - > FAA Analysis
  - > Recommendation

Current Issues in International Certification 12

May 1999

### Decision Papers . . .

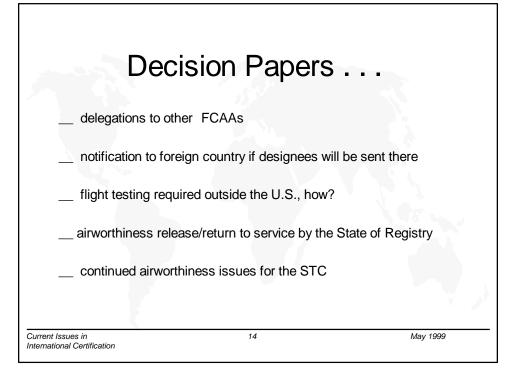
# Points the FAA office must address for International STC decision papers:

appropriateness of FAA involvement
e.g. when the U.S. is not the State of Design (French airplane modified in France, for a French operator), foreign military
airplane, etc.

- acceptance of modification by the foreign State of Registry
- PMA application if the applicant is pursuing multiple STCs
- use of designees in accordance with FAA policy

Current Issues in

13



# Certificate Transfers Outside the U.S.

- > Policy under development
- Per ICAO, should be recognized where there is a competent authority and a company capable of assuming continued airworthiness responsibility.
- → If these conditions are not met, certificate action may be appropriate.
- → Transfer provisions are now part of BASA IPAs. Commit FAA to a process of notification and coordination with the other CAA <u>prior</u> to any final commercial action.

Current Issues in International Certification

15

#### Los Angeles DER Recurrent Seminar-May 18, 1999 Current International Issues

#### **FUTURE??**

- → FAA not staffed to support global expansion of U.S. industry and other authorities cannot support FAA's needs.
- → FAA should carry out its regulatory mission within the scope of what the U.S. is authorized and in accordance with ICAO requirements.
- → Need industry awareness and support

Current Issues in International Certification

16

Los Angeles Aircraft Certification Office

### RISK MANAGEMENT

LAACO FLIGHT TEST

#### AIR Flight Safety Program

- FAA Order 4040.26
- Implemented 1 August 1997
- Risk management as an integral element of the order (Ref Para 4.a. & b.)
- Mandates TIA's will be signed by <u>Flight</u>
   <u>Test Manager</u>, <u>ACO Manager</u> or <u>their</u>
   <u>designees</u>

### **TIA Signature**

- Indicates risk assessment has been accomplished
- Assures establishment of mitigating procedures where possible
- Conscious acceptance of the residual risks
- Formally documents <u>ACO management</u> <u>oversight</u> of risk assessment

#### RISK ASSESSMENT

- What it **IS** 
  - A process, usually iterative, for identifying and mitigating risk
- What it is not
  - A silver bullet, magic potion, infallible or perfect

#### RISK ASSESSMENT (cont'd)

- The elements generally are
  - 1. Identify Hazards
  - 2. Assess Hazards
  - 3. Make Risk Decisions
  - 4. Implement Controls
  - 5. Supervise

#### RISK ASSESSMENT (cont'd)

- Normally done through a safety review of the flight test plan
- The risk assessment will be evaluated in a dedicated safety review meeting
- Use of non-project personnel may offer knowledge of test methods, aircraft type and general test experience otherwise beneficial to the project team

#### Assessing the Risk (cont'd)

- Both project and non-project personnel should be utilized consisting of:
  - Project engineers from appropriate disciplines, Flight test pilot, Flight test engineer
  - Manufacturing Inspection Representative
  - Flight Test Manager or designated alternate
  - Applicant's Representative(s)
  - DER Pilot where appropriate
  - AEG Pilot
  - Outside observer (for complex projects or unique safety issues)

# Suggested Safety Review Meeting Guideline

- Description of aircraft configuration
- Review applicant's ground, structural and flutter tests
- Review operating and airspeed limitations
- Any unique operating procedures required

# Suggested Safety Review Meeting Guideline (cont'd)

- Review results of any critical flight tests flown by applicant
  - Including a summary of any
    - "open" certification tests not pre-flown by the applicant
    - pre-TIA flight test report

# Suggested Safety Review Meeting Guideline (cont'd)

- Review certification test program with emphasis on requirements that may present increased risk
- Assessment of hazards addressing potential risks
- Risk alleviation procedures to be used during the certification tests

#### Risk Management Issues

- Aircraft Configuration
  - CONFORMITY, CONFORMITY, CONFORMITY
  - Even more important when project delays occur
  - Review of Part I of the TIA after project delay may require need for reconformity
- Completion of conformity must be transmitted to flight test by the MIDO prior to commencement of testing

#### Reassessment of Risk

- Underestimated risk during testing
- Discontinue test event
- Reassess risk and alleviation measures
- Define any additional operating limitations
- Approval to refly event by appropriate pilot or Manager

# Change of Test Profile During Testing

- Where changes or additions add medium or high risk tests
  - Approval to fly must be obtained
- LAACO risk management process will be used to obtain approval

#### Documentation

- FOR LOW RISK TESTS
  - via signature of LAACO Manager, Flight Test Manager or Project Pilot
  - Insert risk statement in the TIA after General Description of project (usually page 2)
  - Based on definitions of tests from "Attachment
     A" table in LAACO Risk Assessment Memo

#### Los Angeles DER Recurrent Seminar-May 18, 1999 Flight Test Risk Management

#### TIA RISK ASSESSMENT TABLE FOR LOW RISK TESTS

The Flight Safety/Risk Management TIA requirement can be satisfied by referencing the applicable "INDEX IDENT" from the table below for repetitive type, low risk flight tests in the Risk Assessment Block on the Type Inspection Authorization. This implies no flight operations outside the normal flight envelope of the test aircraft are required and all test points will hore. AFM Limitations, including weight and balance considerations.

Where an experimental Certificate of Airworthiness is deemed a procedural requirement, and flight characteristics or handling qualities are not altered as a result of the modification(s) to the test aircraft, the table can be referenced. If flight characteristics or handling qualities are altered, then the table is not applicable and a more formal risk assessment must be accomplished prior to TIA signature.

INDEX IDENT	TYPE OF TEST	AIRCRAFT CLASS	TEST/OPERATING AREA ALTITUDE RANGE	WEATHER REQUIREMENTS & FLIGHT CONDITIONS	REMARKS	TBI
A	Avionics (including GPS, FMS functional) Follow-on TCAS II	ASE, AME, Rotorcraft, LTA	Within gliding distance of land for aircraft not equipped for overwater ops or not capable of sustained OEI flight.	VMC Day; VMC Night	No operations below 500° ag/ No high sink rates below 1500° ag/. IMC may be acceptable for arcraft not on an experimental Colf.  At discribing the conducted below 500° ag/ where nature of test requires such exception, and has been throughly pre-briefed.  TCAS testing limited to VMC Day conditions. No flight involving formation flying or intrudentarget accraft.	
В	Night Evaluation of cockpit lighting	All	Within the National Airspace System or test area acceptable to flight crew.	VMC Night	Excludes emergency electrical system evaluation.	
С	EMI for cabin electrical systems installations	All (see remarks)	Within the National Airspace System or test area acceptable to flight crew.	VMC Day; VMC Night	Limited to aircraft without Fly-By-Wire Flight Controls. Autoland, FADEC, etc.	
D	Climb Performance	All	Within gliding distance of land for aircraft not equipped for overwater ops or not capable of sustained OEI flight.	VMC Day	No operations below 500' agl, No high sink rates below 1500' agl. IMC may be acceptable for aircraft not on an experimental CotA.	
E	Engine Cooling	Airplane, Rotorcraft	Within gliding distance of land for aircraft not equipped for overwater ops or not capable of sustained OEI flight.	VMC Day; No visible moisture.		
F	Basic Systems Functional Tests	All	In accordance with Program Letter Limits.	VMC/IMC Day/Night	These tests are simple functional tests similar to Production Flight testing or Return to Service after Maintenance.	
G	High Altitude airspeed calibration	All	IAW Program Letter	VMC Day		
Н	Cockpit Evaluation for layout or Human Factors issues.	All	IAW Program Letter	VMC/IMC Day/Night		

NOTE: All operations must adhere to basic FAR 91 requirements, i.e., cloud clearance, visibility, safe al titudes, etc.

TYPE INSPECTION AUTHORIZATION (NAME OF PROJECT )		PROJECT NUMBER: PAGE X X OF	ST0000LA-A XX
GENERAL			
General description of the project goes her	e		
TIA RISK ASSESSMENT	had in this TIA have been reviewed	and is here have determined shot she	and the LAACO TIA
The risks associated with the testing descri RISK ASSESSMENT TABLE FOR LOW restrictions and limitations set forth in the	RISK TESTS. It is expected that the table and are therefore considered accounts and the second secon	ne risks associated with the testing v	
The risks associated with the testing descri RISK ASSESSMENT TABLE FOR LOW	RISK TESTS. It is expected that the table and are therefore considered accounts and the second secon	ne risks associated with the testing v	
The risks associated with the testing descri RISK ASSESSMENT TABLE FOR LOW restrictions and limitations set forth in the Risk Assessment Index:B	RISK TESTS. It is expected that the table and are therefore considered accounts and the second secon	ne risks associated with the testing v	
The risks associated with the testing descri RISK ASSESSMENT TABLE FOR LOW restrictions and limitations set forth in the	RISK TESTS. It is expected that the table and are therefore considered accounts and the second secon	ne risks associated with the testing v	
The risks associated with the testing descri RISK ASSESSMENT TABLE FOR LOW restrictions and limitations set forth in the Risk Assessment Index:B	RISK TESTS. It is expected that the table and are therefore considered acc	te risks associated with the testing veceptable.  Date	will be mitigated by adhering to the

#### Documentation (cont'd)

- FOR MEDIUM OR HIGH RISK TESTS
- Two sections are added to the TIA after the General Description section
- Insert risk statement in the TIA after General Description of project (usually on page 2)
  - TIA RISK ASSESSMENT will show the significant risk considerations

#### Documentation (cont'd)

- See list of tests identified as medium or high risk from LAACO Risk Assessment memo
  - List is not all inclusive; provides suggestions
- TIA OPERATING LIMITATIONS/RISK MITIGATION
  - will document limitations or operating procedures required to mitigate the identified risks
- Management cognizance is via signature of LAACO or Flight Test Manager in TIA
  - verifies risk assessment process conducted for this TIA

#### Los Angeles DER Recurrent Seminar-May 18, 1999 Flight Test Risk Management

#### EXAMPLE FOR HIGH OR MEDIUM RISK TESTS

TYPE INSPECTION AUTHORIZATION (NAME OF PROJECT )

PROJECT NUMBER: ST0000LA-A

#### GENERAL

General description of the project goes here...

#### TIA RISK ASSESSMENT

The following significant risk factors have been identified and procedures/limitations integrated to reduce or mitigate to the extent possible the level of risk expected during the following tests described in this TIA:

- a. Stalls and handling qualities tests with ice shapes installed on unprotected surfaces.
  - Ice shapes may generate unacceptable and unpredictable flight characteristics. To
    mitigate the risk, an incremental approach will be used where representative shapes
    are built up until the final desired shapes can be installed for the certification tests.
  - Test results will be evaluated by the FAA flight test crew prior to conducting FAA
    testing. This evaluation should include the results of representative testing at the
    extremes of the c.g. and throughout the speed envelope to ensure that unexpected
    characteristics will not occur with the final shapes installed.
  - Performance will be degraded with ice shapes installed. Review of available runway and climb gradient will, therefore be required.
  - And so on, based on the <u>Certification Team's</u> assessment of the criticality of the proposed tests.

*Flight Test Branch Manager:		
	Signature	Date

# EXAMPLE FOR HIGH OR MEDIUM RISK TIA OPERATING LIMIT TESTS/RISK MITIGATION

(Sample typical examples of limitations that might be applied)

- All test flights with shapes installed will be conducted in DAY VFR conditions.
- The Company PIC and FAA Test Pilot will in conjunction with the FAA Flight Test Engineer review and agree on the runway lengths and climb gradients required for the weight to be flown on each takeoff
- A continuous weight and balance record will be maintained based on an initial actual weighing with equipment and test crew aboard.
- Ice shape handling qualities will not be conducted below 8,000 feet AGL.
- Emergency egress procedures must be reviewed prior to each flight.
- Continuous communication will be established and maintained between the test aircraft and the ground support test crew.

18A Manufacturing Inspection items go here

18B Flight Test items go here

<sup>\*</sup> May be signed by the Flight Test Pilot for "medium risk" tests.

#### Los Angeles DER Recurrent Seminar-May 18, 1999 Flight Test Risk Management

#### Alternate Means

- For companies with well developed risk management process in place
  - FAA will review the company risk document for acceptability relative to the project
  - FAA flight test will participate as an integral member of their risk management process

	PROJECT NUMBER:ST0000LA-A
(NAME OF PROJECT )	PAGE XX OF XX
<u>GENERAL</u>	
General description of the project goes here	
TIA RISK ASSESSMENT	
	of "The Chance Vought Company" as defined in Document XYZ- ociated with the flight testing specified in this TIA for the F4U
Flight Test Branch Manager :	
Signature  *May be signed by the Flight Test Pilot for medium or low risk tes	Date
May be signed by the Fright Test Flot for medium of low lisk to	315.
TIA OPERATING LIMITATIONS (Sample type)	
All flights will be conducted utilizing the restric	tions/limitations from the Chance Vought Flight Safety document.
10 A Th - M 64	will accomplish the following:
8A The Manufacturing Inspection Branch	
A special Airworthiness Certificate (experimental):     is required	is not required

# DER CANDIDATES and their MENTORS

# Meeting DER Qualification Requirements - Observations

- Usually have sufficient engineering experience
- Generally lacking enough working knowledge of the regulations
- Lacking significant experience working with the FAA

## Other Observations

- Showing the FAA the need to be a DER
- Finding a suitable Mentor
- Consultant DER Candidates and small companies seem to have more difficulty locating mentors than the larger companies

# **OPEN FOR DISCUSSION**

- Company and Consultant DER's mentoring DER Candidates
- Any concerns or experiences you would like to share with us ????



Year 2000

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# Outline

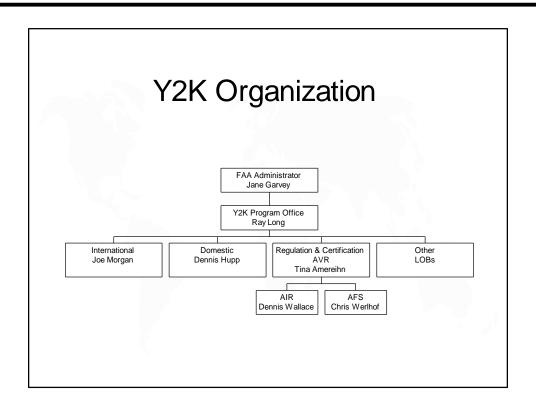
- ♦ Y2K Background
- ◆ Y2K Activity
- ◆ FAA Regulation and Certification Position

# Y2K Background

- ◆ Representing the year as a two digit number
- ◆ Incorrect leap year calculations
- ◆ Hardcoding and magic numbers
- ◆ Limits to date range size

# **FAA Activity**

- **♦** International
- **♦** Domestic
- ◆ Regulation and Certification (AVR)
  - Flight Standards Service (FLS)
  - Aircraft Certification Service (AIR)





# International Background

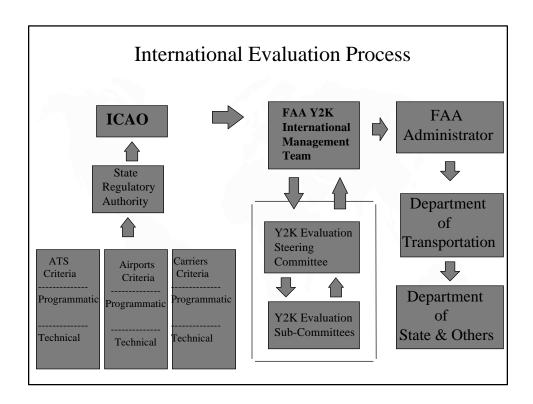
- ◆ Sep 98 ICAO Triennial General Assembly Meeting.
  - FAA recommends international standard set of criteria.
- ◆ Sep 98 ICAO Assembly Resolution passes.
- ◆ Jan 99 ICAO Letter to Contracting States.

# International Objective

- ◆ To provide information and recommendations:
  - to DoS and others so they may direct actions, as appropriate, to protect U.S. citizens and property.
  - To U.S. traveling public so they may make fact based decisions regarding how and where they will travel during and after the millennium date change.

# International Panel Purpose

- ◆ Assess Y2K readiness status of:
  - foreign-based air traffic service providers
  - international airports
  - international air carriers



## **DOMESTIC**

Y2K Program Manager: Dennis Hupp

(202) 267-9512 (202) 493-5007 (fax) dennis.hupp@faa.gov

# Domestic Background

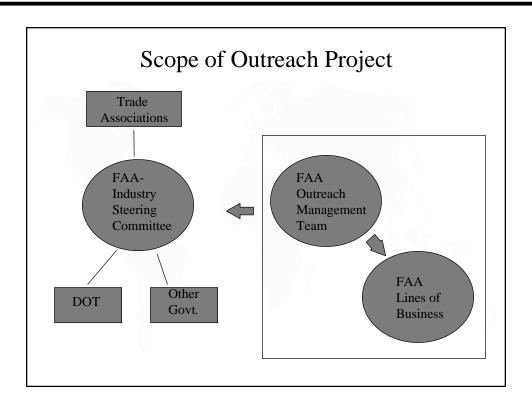
- ◆ Nov 98 President's Council on Year 2000 Conversion.
  - FAA assigned lead in establishing and directing an FAA-Industry Y2K Steering Committee.
    - ◆ FAA Year 2000 program Office Industry Outreach Project

# Outreach Project Structure and Purpose

- ◆ Steering Committee chaired by FAA and comprised of leaders from select aviation trade organizations.
- ◆ Strengthen alliances and promote information sharing between FAA and aviation industry to protect the safety, security, and efficiency of the NAS.

# Outreach Project Objectives

- ◆ Create a heightened awareness
- ◆ Focal point
- ◆ Mitigate risk
- ◆ Reduce duplication of effort
- ◆ Develop solutions



# Regulation and Certification AVR Y2K Program Manager: Tina Amereihn (202) 267-8890 (202) 267-5029 (fax) tina.amereihn@faa.gov

# **Position**

- υ certificate holders must address the Year 2000 issues
- υ existing rules set the standards for:
  - certification, continued airworthiness and safety of flight requirements
- υ the certificate holder must operate in accordance with:
  - existing regulations
  - Operations Specifications (OPS SPECS)
- υ FAA provides regulatory oversight through continuing certificate management and surveillance activities
- υ FAA will not tell industry 'how to comply'

# FLIGHT STANDARDS AFS

Y2K Program Manager: Chris Werlhof

(703) 661-0561 (703)661-0367 (fax)

christopher.k.werlhof@faa.gov

# AIRCRAFT CERTIFICATION SERVICE AIR

Y2K Program Manager: Dennis Wallace

(202) 267-7994 (202) 493-5173 (fax) dennis.wallace@faa.gov

# Aircraft Certification

- ◆ Y2K plan dated 3/98
  - Certificate Holders Self Assessment
  - Transition Survey

# **Survey of Certificate Holders (Domestic)**

- ◆ Manufacture airborne products with embedded software or digital hardware?
- ◆ Manufacture aviation products utilizing tools controlled by digital systems?
- ♦ If so:
  - Y2K assessment?
    - + Changes required?
      - Impact on Safety?

# Results of Survey to Date

- ◆ 2033 Manufacturers contacted.
- ◆ 95 % Response to survey.
  - 39.4 % Manufacture airborne products containing software and/or manufacture airborne products controlled by software.
- ◆ 4.1 % Outstanding.
- .9 % Out of business.

# **Results of Survey to Date**

- ◆ 31 % Manufacture airborne products with embedded software or digital hardware.
- ◆ 67 % have conducted or are in the process of conducting assessment.
- ◆ 9 % indicate required change.
  - ◆ No reported impacts on safety.

# Results of Survey to Date

- ◆ 73 % Manufacture aviation products utilizing tools controlled by digital systems.
- ◆ 79 % have conducted or are in the process of conducting assessment.
- ◆ 16 % indicate required change.
  - ◆ No reported impacts on safety.

# Survey of Foreign Countries

- ◆ Questionnaire sent to 33 CAAs
  - encompasses over 500 companies
- ◆ 18 CAAs have responded to date
  - follow-up letters sent in March
- ◆ No reported safety issues

# Year 2000 Transition Survey

- ◆ Done in conjunction with ACSEP.
- ◆ 110 companies to date.
  - 55 utilize or produce software
- ◆ Assess Y2K status & progress of airborne manufacturing community.
  - Program Management
  - Assessment
  - Validation
  - Implementation

as of 3/31/99

# Transition Survey Program Management Phase

- ◆ Risks associated with overall program management
- ◆ Contingency Plans
  - Do they have a plan?
  - Are they tracking to that plan?
  - Is management part of status chain?
  - Is documentation kept under configuration control?

# Transition Survey Assessment Phase

- ◆ Assessment for Y2K anomaly for supporting processes and systems
  - Purchasing
  - Configuration Management
  - Inspection and manufacturing systems and records
  - Training records
  - Calibration systems
  - Electronic Data Interchange (EDI) systems

# Transition Survey Validation Phase

- ◆ Appropriate testing for each converted or replaced application or system component:
  - Regression
  - Integration
  - System

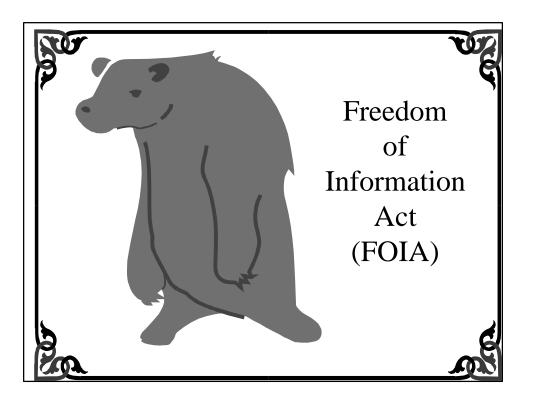
# Transition Survey Implementation Phase

- ◆ Policies for Y2K compliance:
  - All new hardware and software purchases
  - Supplier adherence
  - Utilization of known non-compliant hardware/software

# Year 2000 Transition Survey Areas of Concern

- **◆** Testing
  - + 43 % not conducting regression testing
  - + 37 % not conducting integration testing
  - → 40 % not conducting system testing
- **♦** Contingency Planing
  - + 23 % have no contingency plan
- ◆ Schedule Slippage
  - → Preliminary projection is that 12% of manufacturers may not be compliant until after 1/1/00.

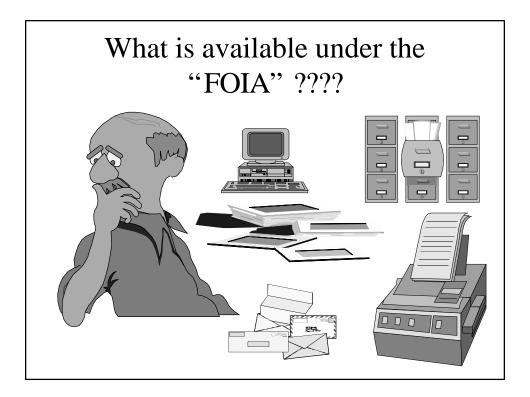
as of 3/31/99



# What is the Freedom of Information Act (FOIA)?

- The FOIA is a federal statute which affords any person the right to obtain federal agency records, unless the records (or a part of the records) are protected from disclosure by any of the nine exemptions contained in the law.
- On October 2, 1996, President Clinton signed into law the Electronic Freedom of Information Act Amendments of 1996 (E-FOIA).

## Los Angeles DER Recurrent Seminar-May 18, 1999 FOIA and the DER



## Basic Rules of Thumb

- Any written request from an outside (non-FAA) Source for material currently in the FAA's "custody & control" is processed as a FOIA request (exceptions: requests from Congress or routinely released data such as FAA Orders, Directives, etc.)
- Items which can be requested (not necessarily released): Correspondence, ACSEP reports, TC data, STC data, PMA data, TSO data, Safety Recommendations, Records of Telephone conversations/Meetings, e:mail, Designee data, Electronic data submissions, etc.

# Los Angeles DER Recurrent Seminar-May 18, 1999 FOIA and the DER

#### FOIA exemptions cover such material as:

- (1) matters of national defense and foreign policy;
- (2) internal personnel rules and practices;
- (3) information exempted by other statutes;
- (4) trade secrets, commercial or financial information (confidential business information);
- (5) privileged interagency or intra-agency communications;
- (6) personal information affecting an individual's privacy;
- (7) records compiled for law enforcement purposes;
- (8) records of financial institutions; and
- (9) geological and geophysical information concerning wells.

# **Exemption Four:**

- Documents containing trade secrets are exempt from disclosure.
- Commercial or financial information that is privileged or confidential are also exempt.
- Distinction between *Required* as opposed to *Voluntary* Submissions.

# Los Angeles DER Recurrent Seminar-May 18, 1999 FOIA and the DER

# Common FOIA Misconceptions:

- FOIA is a mechanism to seek answers to specific questions of program policy, appeal adjudication of program or administrative decisions, or to provide input into FAA program decision making. -- NO It's Not!!
- FOIA is a way to *automatically* obtain your competitor's technical data. -- NO it's Not!!!
- Obtaining a *Patent* from U.S. Patent & Trademark Office (USPTO) will always prevent a competitor from using your proprietary data. Therefore, you don't have to send in an objection when notified of a FOIA request.
  - -- Please Be Careful!!! Coordinating with USPTO does not fall within FAA's responsibilities.

# **CAUTION**

- Always consider that documents provided to the U.S. government may become subject to a FOIA request.
- Only submit necessary information/documentation.
- Those who wish to see their documents protected should assure that the documents containing proprietary or confidential information are marked exempt from disclosure under the FOIA.



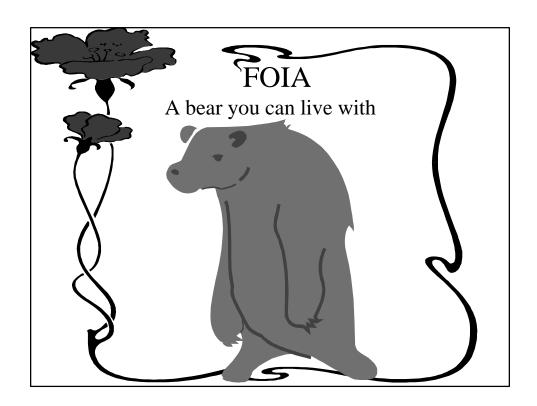
# Summary

- Once a FOIA request is received, Submitters of the requested material will be notified and given the opportunity to claim a FOIA exemption.
- Just like FOIA Requesters, Submitters have certain administrative and judicial appeal rights.
- Always cooperate with FAA (remember Voluntary distinction of Exemption 4!)

# **QUESTIONS?**



# Los Angeles DER Recurrent Seminar-May 18, 1999 FOIA and the DER



#### SPECIAL PROCESS SPECIFICATIONS

- ◆ <u>Special Processes</u> The methods whereby materials, parts, or assemblies are worked or fabricated through a series of precisely controlled steps, and which undergo physical, chemical, or metallurgical transformation
- ◆ Order 8110.4A paragraph 34(a) through (g) discusses special processes and how to evaluate them.
- **◆** Includes Nondestructive Inspection (NDI) Processes
- ◆ Must be referenced on each drawing that they apply to and on the master drawing list. (Reference FAR 21.31)

#### SPECIAL PROCESS SPECIFICATIONS

 ◆ Aircraft, Engine and Propeller parts which are subject to special processes such as heat treating, plating, bonding, welding, etc.
 MUST have those special process specifications thoroughly conformed.

#### SPECIAL PROCESS SPECIFICATIONS

- ◆ Special Processes can effect the strength, corrosion resistance, and continued operational safety of aircraft, engine and propeller parts.
- **◆** Order 8110.4A Chapter 5 requires a 5 phase evaluation of each new special process specification.

#### SPECIAL PROCESS SPECIFICATIONS

◆ Approximately 60% of all manufacturing related Airworthiness Directives are special process related. The Transport Airplane Directorate has issued Airworthiness Directives to correct UNSAFE conditions created during bonding, plating, vacuum brazing and hydrogen embrittlement relieving special processes.

#### SPECIAL PROCESS SPECIFICATIONS

◆ Special Process Specifications must be written in a manner to provide <u>specific</u> information regarding materials, times, temperatures, tolerances, etc... Some MIL/SPECS/STD's and some industry specifications may not be acceptable because they lack specific information.

# EXAMPLES OF SPECIAL PROCESS MILITARY SPEC/STD THAT REQUIRE WRITTEN PROCEDURES

MIL SPEC/STDPARAGRAPH REQUIRING A WRITTEN PROCEDUREMIL-H-6875HPARAGRAPH 4.41 "SUITABLE EVALUATIONHEAT TREATMENTPROCEDURES."

HEAT TREATMENT FOR STEEL

MIL-STD-1949A PARAGRAPH 4.4 "WRITTEN PROCEDURES"

MAG PARTICLE PARAGRAPH 4.4.1 "ELEMENTS OF A

WRITTEN PROCEDURE."

MIL-W-8611 PARAGRAPH 4.1 "QUALIFIED PROCEDURES"
MIL-W-8604 PARAGRAPH 4.2 "PROCEDURE QUALIFICATION"
MIL-STD-2219 PARAGRAPH 4.10 "WRITTEN PROCEDURES"

**FUSION WELDING** 

# Los Angeles DER Recurrent Seminar-May 18, 1999 Special Process Specifications

# EXAMPLES OF SPECIAL PROCESS MILITARY SPEC/STD THAT REQUIRE WRITTEN PROCEDURES

MIL-H-6088G PARAGRAPH 3.1 PROCESS ESTABLISHMENT

HEAT TREATMENT REQUIRES "FULLY CAPABLE HEAT

OF ALUMINUM TREATMENT PROCEDURES"

MIL-STD-6866 PARAGRAPH 4.6 "WRITTEN PROCEDURE"

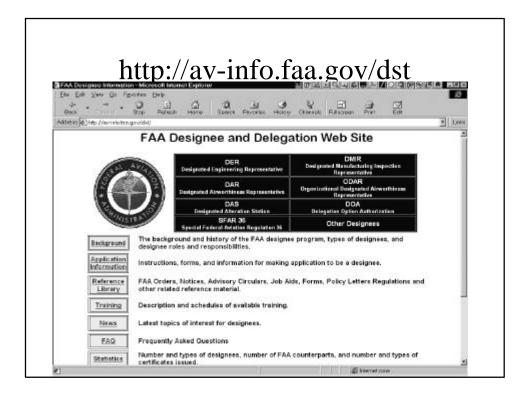
LIQUID PENETRANT

# Internet Update

Kevin Kendall
AFS-610
405 954-7074
kevin.kendall@faa.gov

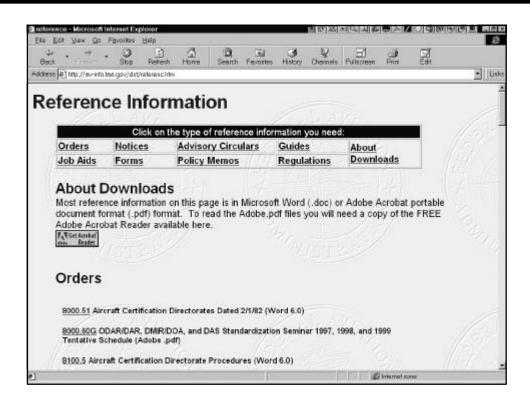
# Designee Web Page

- As of April 1999 we have established a web page for the benefit of FAA Designees
  - Background/History
  - Application
  - Reference
  - Training
  - News
  - FAQ
  - Related Initiatives



## **DER** Information

- Application Information (for new or expansion of authorization)
- Forms 8110-3 on Reference page
- Guidance Orders, Notices, ACs, Links to Regs
- Training Schedule, Invitation, Presentations
- Useful Links TCDS, Federal Register, FAA Academy

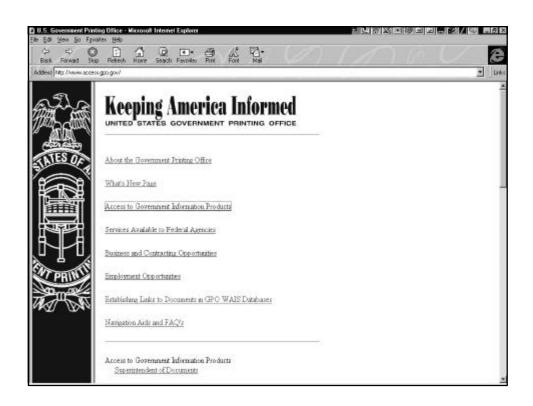


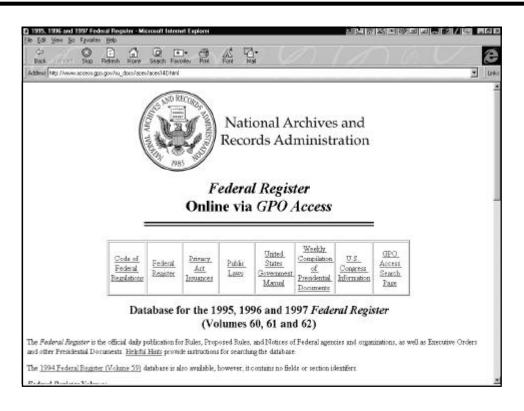
### File Formats

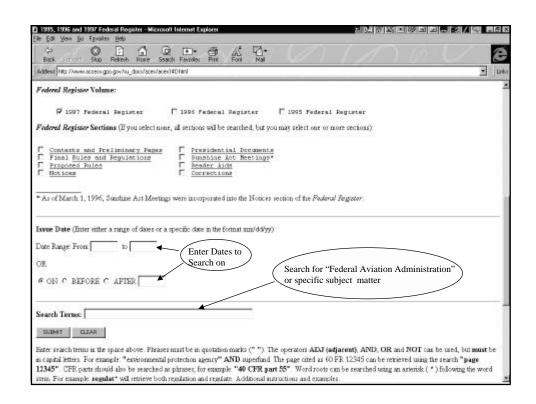
- Word (.doc) and .txt files may be read using Microsoft Word or compatible word processing software
- .pdf files require Adobe Acrobat readeravailable for download at www.adobe.com or FAA Homepage
- .exe files automatically download when "opened"

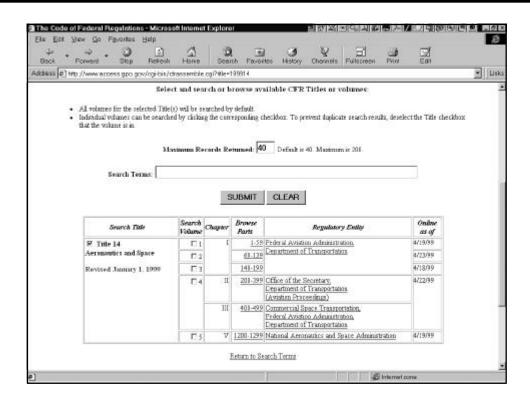
# Government Printing Office

- www.access.gpo.gov
- Access to Regulations
- Search Engine for 1994 and Later Federal Register
  - Airworthiness Directives
  - Rulemaking Activities
- Search or Browse specific FARs









# Summary

- Many sites FAA, US Government, Other
  - Designee Website is now our main focus
  - http://av-info.faa.gov/dst
- Some sites updated frequently others are out of date
- Site development Useful feedback kevin.kendall@faa.gov

# Aviation Data on the Web

The Federal Aviation Administration, Regulatory Support Division, AFS-600 maintains aviation data in multiple databases.

These include:

Service Difficulty Reporting System (SDRS)

Accident/Incident Data System (AIDS)

Enforcement Information System (EIS)

Maintenance Alerts

Vitals Information System (VIS)

Airworthiness Directives (Ads)

Advisory Circulars (Acs)

STC Information

Airmen Testing and Training

Official data is available from government sites; ie,\*\*\*.gov. Much additional useful information is available on other public or commercial sites. Listed below are a few of these sites and a brief summary of data available:

#### av-info.faa.gov

Airline Certificate Information

Aircraft Information

Service Difficulty Reports

Accidents (NTSB Site)

Incidents (FAA Inc Site)

Enforcements

Maintenance Alerts

Airworthiness Directives

**Advisory Circulars** 

STC Summaries

Activity Data

Airline Home Page Links

Type Certificate Data Sheets

#### av-invo.faa.gov/dst

Designee information and reference

#### mma.jccbi.gov/alerts

**Current Edition** 

Searchable Archive Files

Electronic Subscription Sign-up

SDR Link

SDR Input

Afs-600 Homepage Link

#### www.faa.gov

History of the FAA

**Aviation Safety Information** 

Accidents

Incidents

Enforcements

**Advisory Circulars** 

**Questions and Answers** 

FAA Supported Sites

#### www.fedworld.gov

FAA Libraries

Continued Airworthiness Information

Aircraft Service Information

Airmen Training and Testing

**Regulatory Information** 

Other Aviation Information

#### www.access.gpo.gov/su docs/aces/aaces002.html

Federal Register

Federal Aviation Regulations

#### www.aopa.org

**AOPA History** 

Air Safety Foundation

Aviation Databases

Message Boards

Web Links

Weather

Flight Planning

#### www.eaa.org

**EAA History** 

**EAA Chapter Information** 

Ultralights

publications

**Aviation Links** 

#### www.safeflying.com

Federal Aviation Regulations

Service Difficulty Reports

Maintenance Alerts

Airworthiness Directives

Accident/Incident Data

**Advisory Circulars** 

**STC Summaries** 

Service Bulletin References

#### www.landings.com

Aircraft manufacturers

Airlines

Aviation Bulletin Boards

Flight Schools/FBO's

Flying Clubs

Aviation Databases

Miscellaneous Aviation Information

#### www.avweb.com

Aeromedical

Aviation Law

Aviation Databases

News Wire

Reviews

Safety

Weather

#### www.safety.com

Aviation Safety Databases

Regulations

**Inspection Checklists** 

Safety Tips and Safety Items

Airworthiness Information

EAA Flight Advisor Program

#### www.airsafety.com

Airworthiness Directives

Service Difficulty and Mechanical Reliability

Accident and Incident report databases

**Aviation Accident Reports** 

Other Safety Information

# Aviation Data on the Web

#### **Official Government sites:**

FAA Aviation Information (AFS-620) <a href="http://av-info.faa.gov">http://av-info.faa.gov</a>

Designee Information Website http://av-info.faa.gov/dst

Regulatory Support Division AFA-600 http://www.mmac.jccbi.gov/afs/afs600

Aviation Data Systems Branch AFS-620 http://www.mmac.jccbi.gov/afs/afs600/adsb.html

Aviation Maintenance Alerts http://www.mmac.jccbi.gov/alerts

FAA http://www.faa.gov

Flight Standards Service http://www.faa.gov/avr/AFSHOME.HTM

Fedworld http://www.fedworld.gov

Office of System Safety (NASDAC) http://nasdac.faa.gov

NASA Aviation Safety Reporting System <a href="http://olias.arc.nasa.gov/asrs">http://olias.arc.nasa.gov/asrs</a>

Government Printing Office http://www.access.gpo.gov/su\_docs/aces/aaces002.html

#### **Public sites:**

EAA http://www.eaa.org

AOPA http://www.aopa.org

Landings http://www.landings.com

Airjet Airline News http://home.att.net/~airjet

Aviation Safety Data Site http://www.safetydata.com

AVWeb http://www.avweb.com

# FEDERAL AVIATION ADMINISTRATION NATIONAL RESOURCE SPECIALIST NRS REPRESENTATIVES



#### NATIONAL RESOURCE SPECIALTY AREAS

#### CHIEF SCIENTIFIC/TECHNICAL ADVISORS

F	Fracture MechanicsBob Eastin, ANM-101N			
	562/627-5205 (LAACO)			
F	Crash DynamicsSteve Soltis, ANM-102N			
	562/627-5207 (LAACO)			
F	Flight Loads/Aeroelasticity-Fixed WingTerry Barnes, ANM-105N			
	425/227-2761 (Seattle)			
<b>F</b>	Flight Deck Human Factors Kathy Abbott. AIR-105N			
	425/ 227-1024 (Seattle) 202/267-7192 (Wash., DC)			
F	Nondestructive EvaluationAlfred Broz, ANE-105N			
	617/273-7252 (Boston)			
F	Advanced Avionics/ElectricalJim Treacy, ANM-103N			
	425/227-2760 (Seattle)			
F	Flight ManagementGeorge Lyddane, ANM-104N			
	562/627-5206 (LAACO)			

#### NATIONAL RESOURCE SPECIALTY AREAS

#### CHIEF SCIENTIFIC/TECHNICAL ADVISORS

MetallurgyTerry Khaled, ANM-112N			
562/627-5267 (LAACO)			
F Advanced Control SystemsTony Lambregts, ANM-113N			
425/227-2270 (Seattle)			
PropellerMarty Buckman, ANE- 106N			
617/238-7112 (Boston)			
Advanced Composite MaterialsLarry Ilcewicz, ANM-115N			
425/227-1370 (Seattle)			
F Aircraft Computer Software			
425/227-2762 (Seattle)			
© Flight Foreign annual Leine Constill ANM 111N			
Flight Environmental IcingGene Hill, ANM-111N			
Fright Environmental Icing			
425/227-1293 (Seattle)			
425/227-1293 (Seattle)  * Software Quality Assurance			

## NATIONAL RESOURCE SPECIALTY AREAS

#### CHIEF SCIENTIFIC/TECHNICAL ADVISORS

<i>G</i>	Fuel System Design		
		425/227-1370	(Seattle)
F	Electromagnetic Interference	.Dave Walen, AN	M-110N
		425/227-1156	(Seattle)
<b>F</b>	Aeronautical Communication	Tom Kraft, AN	M-114N
		425/227-2129	(Seattle)
F	Manufacturing & Quality	Ben Pourbabai,	AIR-200
	Assurance Technology	202/267-3984	(Wash., DC)
F	Engine Dynamics & Safety	Chester Lewis, A	ANM-116N
		425/227-1653	(Seattle)

#### NRS SUPPORT STAFF

- **PRS Program Manager......Cindy Soffe, AIR-101 (Wash. DC) 202/ 267-7121 (FAX: -5340)**
- PNRS Program Secretary.......Maritza Blakely, AIR-100 (Wash. DC)
   202/267-7242 (FAX: -5340)
- NRS Support (LA ACO.).....Betty Shrout, ANM-100L
   562/627-5212 (FAX: -5209)
- **PRS Support** (Seattle)......Judy Brundage, ANM-100S 425/227-2763 (FAX: -1181)

#### **NRS PROGRAM**

- → COVERED BY ORDER 8000.45
- → ORIGINAL ORDER SIGNED BY LANGHORN BOND 10/23/79
- → REVISION 8000.45A SIGNED BY LANGHORN BOND 5/29/80
- → CURRENT 8000.45B SIGNED BY LYNN HELMS 1/27/83
- → NATIONAL RESOURCE SPECIALISTS (NRS) PROGRAM IS ESTABLISHED TO ASSURE CONTINUED FAA TECHNICAL COMPETENCE IN THE AIRCRAFT CERTIFICATION PROGRAMS
- → NRS ACTIVITIES ARE CONFINED TO THEIR SPECIALTY

#### NRS PROGRAM continued)

- → WASHINGTON HEADQUARTERS HAVE RESPONSIBILITY FOR NRS POSITIONS
- → NRS TRAVEL BUDGET CONTROLLED BY WASHINGTON
- → NRS'S ARE RESPONSIBLE TO ALL FOUR DIRECTORATES
- → NRS HELP CAN BE REQUESTED BY CALLING INDIVIDUAL NRS
- → NRS POSITIONS ARE ADVISORY
- → DIRECTORATE BRANCHES HAVE FINAL RESPONSIBILITY

#### NRS MAJOR DUTIES

- 1. Provides professional technical direction, guidance, advice and assistance to professional and academic organizations, private industry, other governmental bodies, and individuals on a national and international basis.
- 2. Observes, investigates, analyzes, evaluates, reports on, and assures compliance with standard guides, precedents, methods, and techniques in his/her field of expertise.
- 3. Represents the DOT/FAA at international meetings and conferences as the U.S. Government recognized expert in his/her field of expertise in airworthiness certification of civil aircraft, parts, and products.
- 4. Plans, executes, and may conduct major studies in critical and controversial technical problem areas that impact air safety on a national and international basis in his/her field of expertise.

#### NRS MAJOR DUTIES (continued

- 5. Provides professional technical direction, guidance, advice and assistance to Type Certification Boards, Airworthiness Directive Boards, Maintenance Review Boards, Flight Operation Evaluation Boards, Special Certification Review Teams, and Special Condition Standards Review Activities for the purpose of assuring and achieving the airworthiness and safety of civil aircraft.
- 6. Continually reviews, analyzes, evaluates, and recommends revision to or the development of new national policy, Federal Aviation Regulations, Advisory Circulars, Maintenance Alert Bulletins, Orders, and Notices that affect and impact the aviation industry in their respective field of expertise.
- 7. Reviews and evaluates the effectiveness of field elements certification activities with regard to findings of compliance to FAR, including review of the adequacy and currency of related agency procedure and guidance within their area of expertise.

#### NRS MAJOR DUTIES (continued)

- 8. Takes independent action to initiate research and development projects to advance state-of-the-art technology within their field of expertise.
- Maintains proficiency and currency regarding U.S. airworthiness
  requirements for foreign manufactured parts and products intended for
  import into use aboard civil aircraft in this country.
- 10. Identifies, develops, directs, and may conduct technical training within the field of (his/her expertise) as required and directed by the agency needs.
- 11. Maintains professional and technical knowledge within the engineering and scientific field of expertise through continuing education, publication of scientific papers, and active attendance at, and participation in seminars and symposiums.

# Why we need an NRS Program

- FAA needs to be at the forefront of change if the U.S. is to maintain its position of world leadership in the aviation industry.
- - It is important for the FAA to possess the intellectual capital required to deal with
  - \* the growth in aviation, and
  - \* the rapidly advancing aerospace technology.

# What Makes the NRS Program Unique

- → NRS's are "world class experts" in their fields.
- → NRS's have unrestricted access to anyone worldwide, and
- → Anyone, anywhere has access to NRS's.
- → NRS' provide advice and counsel, they do not establish policy or approve.

# **ROLE OF THE NRS**



⇒ Share the expertise